

In The Claims

Claim 1 (currently amended): A method for printing and curing ultraviolet (UV) curable ink, ~~a product, article or other object at a printing station and for enhancing the application of UV light at a curing station to UV photo-initiators in a UV curable ink applied to the product, article or other object at the printing station,~~ comprising the steps of:

printing a UV-curable ink with a printing head on ~~a products, articles, or other objects~~ at a printing station;

emitting UV light at a substantially constant intensity from providing sets of UV LED arrays of UV light-emitting diode- (LED) chips at a curing station, and;

moving the UV LED chips causing relative movement between the sets of UV LED arrays and the printed products, articles, or other objects relative to each other;

uniformly applying, distributing or sweeping UV light emitted from the UV LED chips on the UV curable ink on the printed products, articles, or other objects at the UV curing station while the UV LED chips and printed products, articles, or other objects are moved relative to each other; and

uniformly curing the UV curable ink on the UV curable products, articles, or other objects as the UV light is uniformly applied, distributed, or swept on the UV curable ink.

Claim 2 (currently amended): The method of claim 1 wherein the printing head is reciprocated transversely of the ~~products, articles, or other objects~~ together with the UV LED chips ~~sets of UV LED arrays~~.

Claim 3 (currently amended): The method of claim 1 including:

staggering rows of UV LED chips ~~wherein a further set of UV LED arrays are positioned adjacent the printing head at the curing station; and~~

conveying or indexing the printed ~~the products, articles or other objects is indexed or moved under the further set of UV LED arrays~~ past the staggered rows of UV LED chips.

Claim 4 (currently amended): The method of claim 13 including emitting different wavelengths of UV light on the UV curable ink ~~wherein UV LED chips in the further set of UV LED arrays emit light at a different wavelength or wavelengths then the wavelength of the light emitted by the first named sets of UV LED arrays.~~

Claim 5 (currently amended): The method of claim 13 including reciprocating or oscillating the UV LED chips in proximity to the UV curable ink at the curing station ~~wherein the further set of UV LED arrays are reciprocated or oscillated as the product, article or other object is indexed or moved under the further set of UV LED arrays.~~

Claim 6 (currently amended): The method of claim 13 including the step of maintaining the intensity and output of the UV light emitted from the UV LED chips further set of UV LED arrays generally constant while maintaining the temperature of the UV LED chips generally constant.

Claims 7-9 (canceled)

Claim 10 (currently amended): The method of claim 1 including further emitting fluorescent light upon the UV curable ink at the curing station from ~~wherein at least one fluorescent lamp is located at the curing station and the printed product, article or other object is indexed or moved under the fluorescent lamp.~~

Claim 11 (currently amended): The method of claim 1 including ~~wherein at least one heat lamp is positioned at the curing station at the entrance end to the curing station for heating freshly printed UV curable ink at the curing station with at least one heat lamp.~~

Claim 12 (currently amended): The method of claim 1 including further emitting infra-red light on the UV curable ink at the curing station with at least one ~~wherein said heat lamp is an infra-red heat lamp.~~

Claim 13 (currently amended): An ultraviolet (UV) curing apparatus for curing UV curable ink from ~~use in conjunction with an ink jet printer or other printer,~~

for enhancing the application of UV light at a curing station to UV photo initiators in a UV curable ink applied to a product, article or other object at the printing station, comprising:

sets of UV light-emitting diode (LED) arrays of UV LED chips at the curing station positioned adjacent a printing head of an ink jet printer or other printer for emitting UV light upon UV curable ink dispensed from the printing head upon products, articles, or other objects at the printing station; and,

a mechanism for causing relative movement between the sets of UV LED chips arrays and the printed products, articles or other objects; and

a controller operatively connected to said UV LED chips for controlling and maintaining the intensity of the UV light emitted from the UV LED chips at a substantially constant level to uniformly apply and distribute UV light on the UV curable ink and uniformly cure the UV curable ink.

Claim 14 (currently amended): The UV curing apparatus of claim 13 wherein said mechanism is constructed and arranged to reciprocate comprises a reciprocating mechanism for reciprocating the printing head and said sets of UV LED chips arrays together transversely of the products, articles or other objects.

Claim 15 (canceled)

Claim 16 (currently amended): The UV curing apparatus of claim 13 ~~wherein some of the UV including UV LED chips in said further set of UV LED arrays that emit UV light at a different wavelength than other UV LED chips in or wavelengths that are different then the wavelength of the light emitted by said first named sets of UV LED chips arrays.~~

Claim 17 (canceled)

Claim 18 (currently amended): The UV curing apparatus of claim 13 including:

at least one sensor for sensing the temperature of the UV LED chips; and

said controller is operatively connected to sensor to maintain the temperature of the UV LED chips ~~a system for maintaining the intensity of the UV light emitted from said further set of UV LED arrays generally constant.~~

Claims 19-21 (canceled)

Claim 22 (currently amended): The UV curing apparatus of claim 13 including wherein at least one fluorescent lamp operatively connected to the controller and the UV LED chips ~~is located at the curing station and the printed product, article or other object is indexed or moved under said fluorescent lamp for emitting fluorescent light on the UV curable ink.~~

Claim 23 (currently amended): The UV curing apparatus of claim 13 including wherein at least one heat lamp operatively connected to the controller ~~is positioned at the curing station at the entrance end to the curing station for heating freshly printed UV curable ink.~~

Claim 24 (currently amended): The UV curing apparatus of claim 213 including wherein said heat lamp is an infra-red heat lamp operatively connected to the controller for emitting infra-red light on the UV curable ink.